The Dell and VMware converged infrastructure solution

Dell and VMware deliver true end-to-end convergence through Dell enterprise solutions with VMware ESX™ and NSX™ software with worldwide support

- Delivers optimum agility with robust application-based networking

- Decouples virtual networks from underlying physical network

- Meets compliance requirements through flexible, efficient security, and network segmentation and isolation

- Enables common industry standard CLI for physical and virtual fabric switches

Challenges

Global businesses and distributed offices must cost-effectively grow their infrastructure with easy-to-manage networking equipment that scales to meet their needs.

Key challenges include:

- **Security** – Existing network and security solutions are rigid, complex, often vendor-specific, and operationally infeasible for managing threat propagations in the data center

- **Agility** – Workload placement and mobility are limited due to physical topology and manual provisioning

- **Efficiency** – Manual configuration and physical topology are inflexible, dedicated and time-consuming, stifling network architecture optimization, capacity utilization and innovation

Joint solution

Dell worked closely with the VMware NSX team to deliver an end-to-end converged infrastructure solution that enables the flexibility to unify pools of virtualized and non-virtualized IT assets. Network virtualization with VMware's NSX and Dell's robust data center switching products provides the programmability, automation and cloud scalability to meet the needs of today's complex networks, and allow administrator to simplify operations and fully utilize the underlying network capacity.
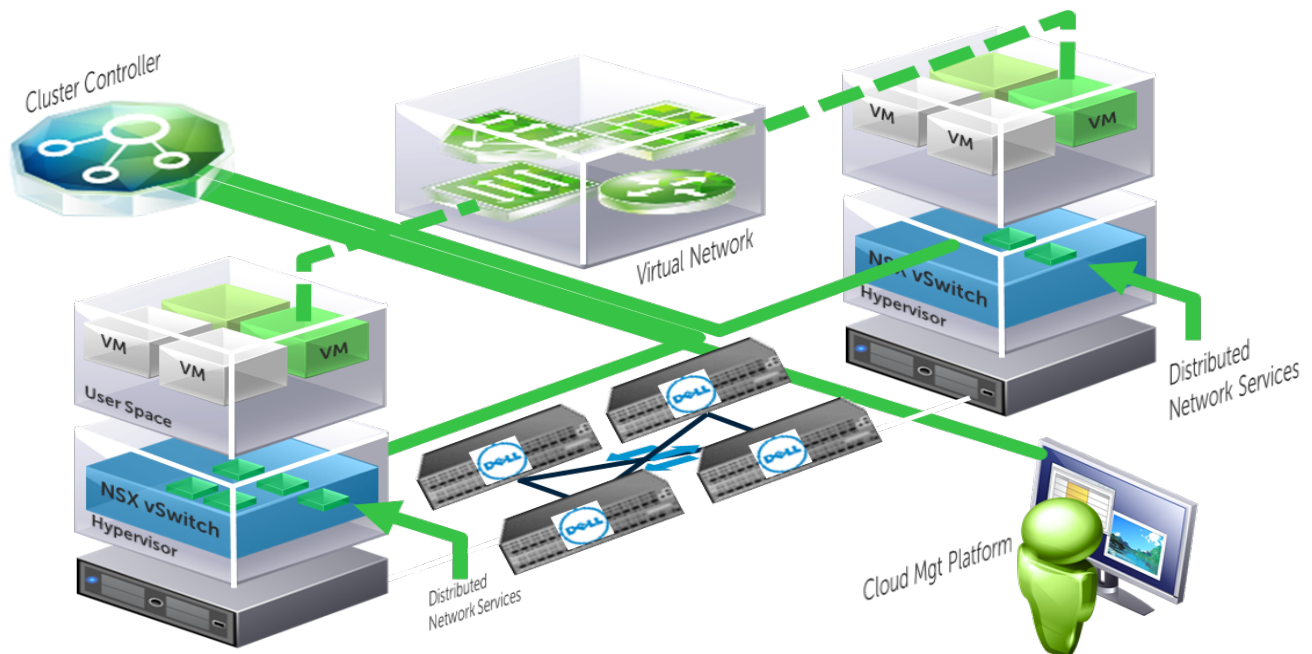
VMware NSX solution

VMware's vision for the software-defined data center abstracts, pools and automates all data center infrastructure virtualizing compute, network and storage resources. Network virtualization with VMware NSX delivers the operational model of a virtual machine to the data center network across the existing physical network hardware.

VMware NSX provides a complete suite of simplified logical networking elements and services, including logical switches, routers, firewalls, load balancers, VPN, QoS, monitoring and security. These services are provisioned in virtual networks through any cloud management platform leveraging the NSX APIs and can be arranged in any topology with isolation and multi-tenancy. Virtual networks are deployed non-disruptively over any existing network and on any hypervisor.

NSX provides essential isolation, security, and network segmentation. Because each virtual network operates in its own address space, it is inherently isolated from all other virtual networks, and the underlying physical network, by default. This approach effectively delivers the principle of least privilege, without the need for physical subnets, VLANs, ACLs, or firewall rules. It also makes it possible to have separate development, test and production virtual networks – each with different application versions but using the same IP addresses – all operating at the same time and on the same underlying physical infrastructure. In addition, NSX virtual networks can easily support multi-tier network environments.

Dell S6000 L2 Gateway for NSX

Dell's S6000 is a highly scalable, high-performance 10/40GbE switch engineered to deliver unprecedented performance to accelerate workloads in demanding, mission-critical enterprise networks. The S6000 delivers line rate performance providing native VXLAN encapsulation and decapsulation for communication over VXLAN tunnels, enabling virtual machines in NSX virtual networks to consume services offered by non-virtualized, physical infrastructure elements.

The Dell S6000 registers with the VMware NSX controller to provide an L2 Gateway service that can be added to any virtual network using the NSX API. The NSX controller coordinates the creation of VXLAN tunnels between the physical switch and hypervisors, while the Dell S6000 enables physical workloads on VLANs to be connected to logical networks on-demand using the NSX API.

The Dell S6000 extends virtual networks to physical servers for complete connectivity between virtualized and non-virtualized legacy workloads. This allows virtualized workloads to take advantage of existing investments made into physical networking appliances, while also enabling legacy physical workloads to fully leverage the latest virtualized networking services available in the NSX ecosystem. This offers compelling benefits for the newest cloud-enabled applications, and improves the efficiency, cost and capabilities of network service delivery for traditional and legacy workloads.
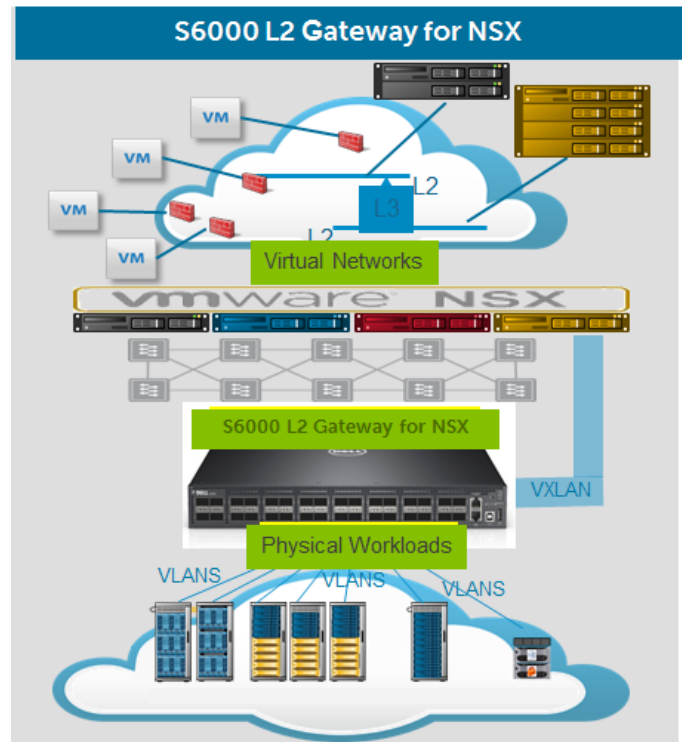
Key customer benefits:

- Create distributed virtual L2 networks on top of existing physical networks for seamless migration of virtual machines across the entire data center
- Simplify operation through centralized, programmatic control of network service provisioning.
- Realize the full potential of software defined enterprise and software defined data centers

Summary

Dell's converged infrastructure solution with VMware NSX unifies non-virtualized and virtualized infrastructures to create large L2 networks across the entire data center for deployment agility, VM mobility and infrastructure utilization. This joint solution provides a competitive edge through maximum operational efficiency, agility and security that allows our customers the power to do more.

Learn more at Dell.com/Networking.